

CLAIMS

1. A method for measuring a subject substance in a specimen under an acidic pH condition, comprising:

5 step A of forming a reaction system by mixing the specimen and an antibody against the subject substance in the specimen; and

step B of measuring an antigen-antibody reaction in the reaction system, wherein

10 a pH of the reaction system is set to be acidic, and a relationship between a pI of the antibody and the pH of the reaction system is set to be $pI > pH$.

2. The method according to claim 1, wherein, in the step
15 B, an amount of an antigen-antibody complex formed between the subject substance and the antibody is measured.

3. The method according to claim 1, wherein the difference between the pI and the pH is equal to or more than about 1.0.

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4. The method according to claim 1, wherein the difference between the pI and the pH is equal to or more than about 1.5.

25 5. The method according to claim 1, wherein the pH is in a range of about 4 to 6.

6. The method according to claim 1, wherein the pH is in
a range of about 4.5 to 5.0.

5 7. The method according to claim 1, wherein, in the step
A, the reaction system is formed by mixing the specimen, the antibody,
and a buffer.

8. The method according to claim 1, wherein the reaction
10 system contains an organic acid or an organic acid salt.

9. The method according to claim 8, wherein the organic
acid or the organic acid salt is a polyvalent carboxylic acid or
a polyvalent carboxylate salt.

15 10. The method according to claim 9, wherein the polyvalent
carboxylic acid or the polyvalent carboxylate salt is either: a
tricarboxylic acid or a tricarboxylate salt; or a dicarboxylic
acid or a dicarboxylate salt.

20 11. The method according to claim 1, wherein the antibody
is a monoclonal antibody, a polyclonal antibody, or a labeled
antibody.

25 12. The method according to claim 2, wherein the step B

of measuring includes a step of measuring an optical parameter attributed to the amount or the size of the complex.

13. A reagent for measuring a subject substance in a specimen under an acidic pH condition based on an antigen-antibody reaction principle, the reagent including an antibody against the subject substance, wherein a pI of the antibody with respect to the acidic pH is prepared to be $pI > pH$.

10 14. The reagent according to claim 13, wherein the difference between the pI and the pH is equal to or more than about 1.0.

15 15. The reagent according to claim 13, wherein the difference between the pI and the pH is equal to or more than about 1.5.

16. The reagent according to claim 13, wherein the pH is in a range of about 4 to 6.

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17. The reagent according to claim 13, wherein the pH is in a range of about 4.5 to 5.0.

25 18. The reagent according to claim 13, wherein an organic acid or an organic acid salt is contained.

19. The reagent according to claim 18, wherein the organic acid or the organic acid salt is a polyvalent carboxylic acid or a polyvalent carboxylate salt.

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20. The reagent according to claim 19, wherein the polyvalent carboxylic acid or the polyvalent carboxylate salt is either: a tricarboxylic acid or a tricarboxylate salt; or a dicarboxylic acid or a dicarboxylate salt.

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21. The reagent according to claim 13, wherein the antibody is a monoclonal antibody, a polyclonal antibody, or a labeled antibody.

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22. The reagent according to claim 13 provided in a freeze-dried state.

23. The reagent according to claim 13 provided as a solution.

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24. A measurement kit for measuring a subject substance in a specimen under an acidic pH condition based on an antigen-antibody reaction principle, the kit including:
a buffer solution; and
a reagent including an antibody against the subject substance,

25 wherein

the reagent is prepared such that a pI of the antibody with respect to the acidic pH is pI > pH.

25. The kit according to claim 24, wherein the difference
5 between the pI and the pH is equal to or more than about 1.0.

26. The kit according to claim 24, wherein the difference between the pI and the pH is equal to or more than about 1.5.

10 27. The kit according to claim 24, wherein a pH of the buffer solution is in a range of about 4 to 6.

28. The kit according to claim 24, wherein the pH of the buffer solution is in a range of about 4.5 to 5.0.

15 29. The kit according to claim 24, wherein the buffer solution contains an organic acid or an organic acid salt.

20 30. The kit according to claim 29, wherein the organic acid or the organic acid salt is a polyvalent carboxylic acid or a polyvalent carboxylate salt.

25 31. The kit according to claim 30, wherein the polyvalent carboxylic acid or the polyvalent carboxylate salt is either: a tricarboxylic acid or a tricarboxylate salt; or a dicarboxylic

acid or a dicarboxylate salt.

32. The kit according to claim 24, wherein the antibody
is a monoclonal antibody, a polyclonal antibody, or a labeled
5 antibody.

33. The kit according to claim 24, wherein the antibody
is a mixture of at least equal to or more than two types of the
monoclonal antibodies each recognizing a different epitope.

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34. The kit according to claim 24, wherein the reagent is
provided in a freeze-dried state.

35. The kit according to claim 24, wherein the buffer
15 solution and the reagent are mixed together, in order to measure
the subject substance, immediately before the use and the mixture
is used as a test solution.

36. An immunoreaction measurement optical cell for
20 measuring a subject substance in a liquid specimen under an acidic
pH condition based on an antigen-antibody reaction principle, the
optical cell having

an aperture portion for accepting the liquid specimen,
wherein

25 an antibody against the subject substance is held in the

optical cell so as to be dissolvable in the liquid specimen, and
a pH of a reaction system formed by mixing the liquid specimen
and the antibody against the subject substance is acidic, and a
relationship between the pH of the reaction system and the pI of
5 the antibody is $pI > pH$.

37. The optical cell according to claim 36 further
comprising a buffer in the optical cell.